



Supplement of

Historically consistent mass loss projections of the Greenland ice sheet

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Figure S1. Differences in ice thickness of the ERA5-initalization to the target ice thickness from BedMachine v3 (Morlighem et al., 2017). Absolute difference of 90% of values is less that 16 m.



Figure S2. Simulated horizontal ice surface velocity of the ERA5-initialization (a), observed horizontal ice surface velocity (b) for data collected between 1995-2015 (Joughin et al., 2016) and masked with observed grounded ice mask from 2000 (Howat, 2017), and difference between observed and modeled velocity (c).



Figure S3. Differences in reference SMB (mean annual SMB of 1960-1989) between various ESMs and ERA5-reanalysis used for initialization of the ice sheet.



Figure S4. Differences in ice surface elevation with respect to the ERA5-initialization for various ESM-initializations.



Figure S5. Differences in bed friction field with respect to the ERA5-initialization for various ESM-initializations.

References

https://doi.org/10.1002/2017GL074954, 2017.

Howat, I.: MEaSUREs Greenland Ice Mapping Project (GIMP) land ice and ocean classification mask, Version 1, Boulder, Colorado USA. NASA National Snow and Ice Data Center Distributed Active Archive Center, https://doi.org/10.5067/B8X58MQBFUPA, 2017.

Joughin, I., Smith, B., Howat, I., and Scambos, T.: MEaSUREs multi-year Greenland ice sheet velocity mosaic, version 1, Boulder, Colorado USA. NASA National Snow and Ice Data Center Distributed Active Archive Center, https://doi.org/10.5067/QUA5Q9SVMSJG, 2016.

- Morlighem, M., Williams, C. N., Rignot, E., An, L., Arndt, J. E., Bamber, J. L., Catania, G., Chauché, N., Dowdeswell, J. A., Dorschel, B., Fenty, I., Hogan, K., Howat, I., Hubbard, A., Jakobsson, M., Jordan, T. M., Kjeldsen, K. K., Millan, R., Mayer, L., Mouginot, J., Noël, B. P., O'Cofaigh, C., Palmer, S., Rysgaard, S., Seroussi, H., Siegert, M. J., Slabon, P., Straneo, F., van den Broeke, M. R., Weinrebe, W., Wood, M., and Zinglersen, K. B.: BedMachine v3: Complete Bed Topography and Ocean Bathymetry Mapping of Greenland From Multibeam Echo Sounding Combined With Mass Conservation, Geophysical Research Letters, 44, 11,051–11,061,
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